

Remarks

The Office Action dated June 26, 2007, and made final, has been carefully reviewed and the following remarks are made in consequence thereof.

Claims 1, 3-11, 13-20, and 22-27 are pending in this application. Claims 1, 3-11, 13-20, and 22-27 stand rejected.

The rejection of Claims 1, 3-11, 13-20, and 22-27 under 35 U.S.C. § 103(a) as being unpatentable over Holtrop (4,476,183) in view of Juriga (5,536,556), and Orimo (5,817,408) is respectfully traversed.

Holtrop et al., Juriga, and Orimo et al., alone or in combination, do not describe nor suggest a multi-layered fiber reinforced thermoplastic sound absorbing panel as recited in Claim 1, a composite sheet as recited in Claim 10, or a method of manufacturing a porous fiber-reinforced thermoplastic sheet as recited in Claim 20. Particularly, Holtrop et al., Juriga, and Orimo et al., alone or in combination, do not describe nor suggest a non-foam, porous fiber reinforced thermoplastic core layer comprising a thermoplastic material and from about 20 weight percent to about 80 weight percent fibers. Rather, Holtrop et al. describe a laminate structure that includes three separate layers of foamed thermoplastic material adhesively bonded together, with the middle layer formed from a different thermoplastic material that at least one of the outer layers. The Holtrop et al. core is a foam and does not contain any reinforcing fibers. Holtrop et al. do teach that in one embodiment one of the foam layers can be replaced with batts of polypropylene fibers or polyester fibers. However, Applicants submit that one skilled in the art knows that a batt of thermoplastic fibers is not a fiber reinforced thermoplastic core layer that includes a thermoplastic material and from about 20 to about 80 weight percent fibers. Holtrop

et al. merely describe a batt of fibers as a layer. There is no description or suggestion that the batt of fibers also contain a thermoplastic material in addition to the fibers. Further, Applicants submit that the layer formed from batts of thermoplastic fiber contains 100% by weight of fibers.

Furthermore, Applicants disagree with the assertion that because Holtrop et al. teach that second layer 13 can be batts of polypropylene fibers or polyester fibers, the "Examiner considers this to meet with the newly added limitation of a non-foam porous fiber reinforced thermoplastic layer." As explained above, one skilled in the art knows that a batt of thermoplastic fibers is not a fiber reinforced thermoplastic core layer that includes a thermoplastic material and from about 20 to about 80 weight percent fibers. Applicants submit that there is no support in the teachings of Holtrop et al. for the Examiner's assertion. A batt of fibers is a batt of fibers. A bat of fibers is not a thermoplastic material that includes reinforcing fibers.

Also, Juriga does not describe nor suggest a non-foam, porous fiber reinforced thermoplastic core layer comprising a thermoplastic material and from about 20 weight percent to about 80 weight percent fibers. Rather, Juriga teaches a fiber mat permeated and saturated with a thermoplastic polymeric resin which, one skilled in the art knows, renders the fiber mat non-porous. Juriga also teaches a foam layer that is porous, but the foam layer does not include reinforcing fibers.

In addition, Orimo et al. do not describe nor suggest a non-foam, porous fiber reinforced thermoplastic core layer comprising a thermoplastic material and from about 20 weight percent to about 80 weight percent fibers. Rather Orimo et al. teaches a low density layer that is a non-woven fabric of thermoplastic synthetic fibers. Applicants submit that one skilled in the art knows that a low density layer that is a non-woven fabric of thermoplastic synthetic fibers is not

a fiber reinforced thermoplastic core layer that includes a thermoplastic material and from about 20 to about 80 weight percent fibers.

In addition, Holtrop et al. describe a laminate structure that includes three separate layers of foamed thermoplastic material adhesively bonded together, with the middle layer formed from a different thermoplastic material than at least one of the outer layers. A resin impregnated fabric is bonded to the outer surfaces of the laminate structure. Applicants submit that only one element, the outer fabric layer, of the Holtrop et al. laminate structure is recited in independent Claims 1, 10, and 20 of the present application.

Also, secondary reference Juriga teaches a multi-layer insulating laminate that is suitable for a sound attenuating barrier. The laminate includes a decorative layer bonded to one side of a fiber mat. The other side of the fiber mat is bonded to one side of a foam layer. A fiber scrim is bonded to the other side of the foam layer. The fiber mat is permeated and saturated with a thermoplastic polymeric resin which makes the fiber mat non-porous. While Juriga does teach a decorative layer bonded to one side of the laminate and a fiber skin bonded to the other side of the laminate, Juriga does not teach the other elements of Claims 1, 10, and 20. Particularly, Juriga does not teach a non-foam porous fiber reinforced thermoplastic core as recited in Claims 1, 10, and 20. Rather, as explained above, Juriga teaches a fiber mat permeated and saturated with a thermoplastic polymeric resin which makes the fiber mat non-porous. Juriga also teaches a foam layer that is porous, but the foam layer does not include reinforcing fibers. Also, as admitted by the 1/24/07 Office Action, at page 4, Juriga does not disclose an air impermeable barrier layer comprising a non-permeable thermoplastic material having a melting temperature higher than the melting temperature of the core layer thermoplastic material. Further it would

not be obvious to modify the laminate of Holtrop et al. with the laminate structure of Juriga because there is no motivation to do so, other than hindsight, using the claimed invention as an instruction manual or “template” to piece together the teachings of the prior art. The current Office Action asserts that it would have been obvious to one of ordinary skill in the art to combine the structures of Holtrop with the apparatus of Juriga to provide a thermosetting adhesive to the structure. Applicants submit that because Holtrop et al. discloses adhesively bonding the three foamed layers to one another (Col. 4, line 44 to Col 5, line 2), the asserted motivation to combine Juriga with Holtrop et al. does not exist. Furthermore, the combined teachings of Holtrop et al and Juriga do not teach the structure recited in Claims 1, 10, and 20 of the present application. Particularly, there is no teaching of a non-foam porous fiber reinforced thermoplastic core, a barrier layer bonded to the second surface of the core with a tie layer, a fabric layer bonded to the barrier layer, and a decorative layer bonded to the first surface of the core. Furthermore, Claims 1, 10, and 20 recite a thermoplastic adhesive, not a thermosetting adhesive as the Office Action asserts that Jurgia teaches.

In addition, secondary reference Orimo et al. teaches a sound insulation structure that includes a low density layer and a high density layer formed on the low density layer. The low density layer is made from two separate fibrous layers, a sound-absorbing layer and a low spring constant layer. Each of the two fibrous layers are non-woven fabric layers that are from staples of thermoplastic synthetic fibers. Each fibrous layer contain three different diameter thermoplastic fibers having different softening temperatures. The high density layer is an air-impermeable polymer material formed on the low density layer. No tie layer is used to bond the high density layer to the low density layer because the high density layer is formed directly on

the low density layer. Orimo et al. do not teach a non-foam porous fiber reinforced thermoplastic core layer as recited in Claim 1. Rather Orimo et al. teaches a low density layer that is a non-woven fabric of thermoplastic synthetic fibers. Also, Orimo et al. do not teach a barrier layer bonded to the second surface of the core with a tie layer as recited in Claims 1, 10, and 20. Rather, Orimo et al. teaches a high density layer of an air-impermeable polymer material formed directly on the low density layer. Further it would not be obvious to modify the laminate of Holtrop et al. with the laminate structure of Orimo et al. because there is no motivation to do so, other than hindsight, using the claimed invention as an instruction manual or “template” to piece together the teachings of the prior art.

The Office Action at page 4 asserts that it would have been obvious to one of ordinary skill in the art to combine the structures of Holtrop et al. with the apparatus of Orimo et al. to improve sound insulation characteristics and to protect the sound absorbing layers from damage. Applicants submit that there is no indication in Orimo et al. that the sound insulation characteristics would be superior to the sound insulation characteristics of Holtrop et al. Further, there is no indication that the purpose of the high density layer is to protect the low density layer from damage. Rather, Applicants submit that the high density layer is a sound reflector used by Orimo et al. to reflect sound waves back into the low density layers. Furthermore, the combined teachings of Holtrop et al and Orimo et al. do not teach the structure recited in Claims 1, 10, and 20. Particularly, there is no teaching of a non-foam porous fiber reinforced thermoplastic core, a barrier layer bonded to the second surface of the core with a tie layer, a fabric layer bonded to the barrier layer, and a decorative layer bonded to the first surface of the core.

Applicants submit that the combined teachings of Holtrop et al., Juriga, and Orimo et al. do not teach a multi-layered fiber reinforced thermoplastic sound absorbing panel as recited in Claim 1, a composite sheet as recited in Claim 10, or a method of manufacturing a porous fiber-reinforced thermoplastic sheet as recited in Claim 20. Particularly, and as explained above, there is no teaching from the combined references of a non-foam porous fiber reinforced thermoplastic core, a barrier layer bonded to the second surface of the core with a tie layer, a fabric layer bonded to the barrier layer, and a decorative layer bonded to the first surface of the core. In particular, Applicants submit that none of the cited references teach a non-foam porous fiber reinforced thermoplastic core; therefore, the combined teachings of Holtrop et al., Juriga, and Orimo et al. do not teach all the recitations of independent Claims 1, 10, and 20. Accordingly, Applicants submit that independent Claims 1, 10, and 20 are patentable over Holtrop et al., Juriga, and Orimo et al., alone or in combination.

Claims 3-9 depend from independent Claim 1, Claims 11 and 13-19 depend from independent Claim 10, and Claims 22-27 depend from independent Claim 20. When the recitations of Claims 3-9, Claims 11 and 13-19, and Claims 22-27 are considered in combination with Claims 1, 10, and 20 respectively, Applicants respectfully submit that dependent Claims 3-9, 11, 13-19, and 22-27 likewise are patentable over Holtrop et al., Juriga, and Orimo et al., alone or in combination.

For the reasons set forth above, Applicants respectfully request that the Section 103(a) rejection of Claims 1, 3-11, 13-20, and 22-27 be withdrawn.

In view of the foregoing amendments and remarks, all the claims now active in this application are believed to be in condition for allowance. Favorable action is respectfully solicited.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "Michael Tersillo", written over a horizontal line.

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